

Message

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Sent: 3/11/2014 10:40:50 PM
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Subject: Treasure Island: Sampling and Analysis Plan, Non-Time Critical removal Action for Bigelow Court Solid Waste Disposal Area, IR Site 12

On your request I have reviewed the Sampling and Analysis Plan, Non-Time Critical removal Action for Bigelow Court Solid Waste Disposal Area, IR Site 12, for former Naval Station Treasure Island dated February 2014. The document was prepared by CB&I Federal Services LLC of Concord, California, for the U.S. Navy BRAC Program Management Office West, Naval Facilities Engineering Command in San Diego.

The document was prepared to support remediation and closure activities in the Bigelow Court Solid Waste Disposal Area (SWDA) at Installation Restoration Site 12. The report lists the following Contaminants of Concern (COCs) and their respective cleanup goals:

COC	Cleanup goal
Lead	400 mg/kg (400 ppm)
Polychlorinated Biphenyls (PCBs)	1 mg/kg (1 ppm)
Polynuclear Aromatic Hydrocarbons (PAHs)	0.62 mg/kg (0.62 ppm) benzo(a)pyrene or toxicity equivalent
Radium-226	1.69 pCi/gm, indistinguishable from reference area background

My review is limited only to those elements of the Sampling and Analysis Plan that apply to the evaluation of radiation hazards at the Bigelow Court Solid Waste Disposal Area.

The document states that radioactive contamination has not been found at the Bigelow Court site; however, the contractor has planned radiological screening of the soil and of Buildings 1101 and 1103 because radioactive contaminants have been found at other solid waste debris areas in IR Site 12.

The document consists of a series of numbered worksheets. Each worksheet contains specific details that apply to elements of a Navy workplan that follow a format that was agreed upon by the Navy and the contractor. Those elements cover everything from project management, oversight, quality control and data review to survey design, sample collection, and laboratory analysis.

SAP Worksheet #10, titled Problem Definition, does not state the physical or chemical form in which Ra-226 is expected to be found. Because discrete devices containing Ra-226, described by the Navy as deck markers, have been found in residential areas at Treasure Island in the past, I would expect that those represent at least one form in which Ra-226 is expected to be found. However, Strontium-90, another radionuclide that was used in the deck marker devices, is not listed as a COC, and because the cleanup goal for Ra-226 is listed as a concentration in soil, I must conclude from the worksheet that the deck marker devices are not expected to be found at the Bigelow Court site. SAP Worksheet #10 includes a summary conceptual site model that states that historical site uses include bunker storage for munitions, and disposal and burning of solid waste. Excavation is planned to a depth of 4 feet.

SAP Worksheet #14, titled Summary of Project Tasks, lists EPA Method 901.1 (Gamma Spectroscopy) as the technique that will be used for measuring radioactivity. This is an acceptable technique for measuring Ra-226. However, the

document does not provide a detection limit as an indicator of measurement sensitivity, or any details about measurement specificity or other data quality objectives.

SAP Worksheet #17, titled Sampling Design and Rationale, states that the contractor will collect 20 samples for every 1000 square feet of area. However, the module does not provide any site diagram or other specifics about the sampling plan. Although only a final status survey must be based on the *Multi-Agency Radiation and Site Survey Investigation Manual* (MARSSIM) Revision 1, NUREG-1575 Rev. 1/EPA 402-R-97-016 Rev. 1/DOE EH-0624 Rev. 1, dated August 2000, it's customary to use MARSSIM as a reference document for CERCLA-related site investigations.

SUMMARY AND RECOMMENDATIONS

While the document may have considerable meaning and value to Navy personnel, as a document that describes actions that are required as part of the CERCLA site characterization process it lacks important details. Specifically, I recommend that you consider asking the Navy's contractor to include the following additions to the document, at a minimum:

SAP Worksheet #10. The document should describe the physical or chemical form in which Ra-226 is expected to be found, and the forms in which Ra-226 has been found at Treasure Island in the past. Since Sr-90 has also been found in Navy deck markers, the document should state why Sr-90 is not a COC.

SAP Worksheet #14. The document should describe the sample size and form that will be analyzed using gamma spectrometry. The document should also state the formula that will be used to calculate the measurement detection limit, the detection limit, and the gamma ray energy (energies) at which Ra-226 will be measured, along with other pertinent data quality objectives that the Navy will use to establish data acceptance.

SAP Worksheet #17. The document should include a site diagram that shows where samples will be collected. The document should also include the depth(s) at which samples will be collected.
